

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

- 1 1. (currently amended) A method for detecting defects in a lithography mask blank,
2 comprising:
 - 3 (a) applying a photoresist layer ~~to~~ directly onto a reflective surface of the mask
4 blank;
 - 5 (b) exposing the photoresist layer with radiation having a wavelength and angle of
6 incidence such that the photoresist layer is fully exposed by the combination of direct
7 radiation and reflected radiation from the mask blank in areas of the mask blank in which
8 there are no defects;
 - 9 (c) developing the exposed photoresist layer to remove the fully exposed
10 photoresist from the mask blank; and
 - 11 (d) detecting photoresist remaining on the mask blank after development of the
12 photoresist layer to detect defects in the mask blank.
- 1 2. (original) The method of Claim 1 wherein the photoresist layer includes a photoresist
2 material selected from the group of photoresist materials consisting of PMMA and UV-6.
- 1 3. (original) The method of Claim 1 wherein the photoresist layer includes a fluorescent
2 material incorporated therein.
- 1 4. (original) The method of Claim 3 wherein detecting the photoresist remaining on the
2 mask blank after development includes illuminating the mask blank to excite the fluorescent
3 material in the photoresist remaining on the mask blank after development of the photoresist
4 layer.
- 1 5. (original) The method of Claim 4 wherein detecting the photoresist remaining on the
2 mask blank includes detecting the excited fluorescent material using an optical microscope.
- 1 6. (original) The method of Claim 1 wherein the mask blank is an EUV mask blank.
- 1 7. (original) The method of Claim 1 wherein exposing the photoresist layer includes
2 exposing the photoresist layer with an X-ray radiation source.

1 8. (original) The method of Claim 7 wherein exposing the photoresist layer includes
2 exposing the photoresist layer with a Cu K-alpha X-ray source.

1 9. (original) The method of Claim 1 wherein exposing the photoresist layer includes
2 exposing the photoresist layer with an EUV radiation source.

1 10. (original) The method of Claim 1 wherein detecting the photoresist remaining on the
2 mask blank includes detecting the photoresist remaining on the mask blank using an atomic
3 force microscope.

1 11. (original) A method for detecting defects in an EUV lithography mask blank,
2 comprising:

3 (a) applying a photoresist layer including a fluorescent material incorporated
4 therein to the EUV mask blank;

5 (b) exposing the photoresist layer with radiation having a wavelength and angle of
6 incidence such that the photoresist layer is fully exposed by the combination of direct and
7 reflected radiation in areas of the mask blank in which there are no defects;

8 (c) developing the exposed photoresist layer to remove the fully exposed
9 photoresist from the EUV mask blank;

10 (d) illuminating the mask blank to excite the fluorescent material in the
11 photoresist remaining on the mask blank after development of the photoresist layer; and

12 (e) detecting the illuminated photoresist remaining on the EUV mask blank after
13 development of the photoresist layer to detect defects in the mask blank.

1 12. (original) The method of Claim 11 wherein the photoresist layer includes a
2 photoresist material selected from the group of photoresist materials consisting of PMMA
3 and UV-6.

1 13. (original) The method of Claim 11 wherein exposing the photoresist layer includes
2 exposing the photoresist layer with an X-ray radiation source.

1 14. (original) The method of Claim 13 wherein exposing the photoresist layer includes
2 exposing the photoresist layer with a Cu K-alpha X-ray source.

1 15. (original) The method of Claim 11 wherein detecting the photoresist remaining on
2 the mask blank includes detecting the photoresist remaining on the mask blank using an
3 optical microscope.

1 16. (currently amended) A method for detecting defects in a reflective material,
2 comprising:

3 (a) applying a photoresist layer to directly onto a reflective surface of the
4 reflective material;

5 (b) exposing the photoresist layer with radiation having a wavelength and angle of
6 incidence such that the photoresist layer is fully exposed by the combination of direct
7 radiation and reflected radiation from the reflective surface in areas of the reflective material
8 in which there are no defects;

9 (c) developing the exposed photoresist layer to remove the fully exposed
10 photoresist from the reflective material; and

11 (d) detecting photoresist remaining on the reflective material after development of
12 the photoresist layer to detect defects in the reflective material.

1 17. (original) The method of Claim 16 wherein the reflective material is an EUV
2 lithography mask blank.

1 18. (original) The method of Claim 16 wherein detecting the photoresist remaining on
2 the reflective material includes detecting the photoresist remaining on the reflective material
3 using an atomic force microscope.

1 19. (original) The method of Claim 16 wherein detecting the photoresist remaining on
2 the reflective material includes detecting the photoresist remaining on the reflective material
3 using scattered light.

1 20. (original) The method of Claim 16 wherein the photoresist layer includes a
2 fluorescent material incorporated therein.

1 21. (original) The method of Claim 20 wherein detecting the photoresist remaining on
2 the reflective material after development includes illuminating the reflective material to
3 excite the fluorescent material in the photoresist remaining on the mask blank after
4 development of the photoresist layer.

1 22. (original) A lithography mask blank prepared for the detection of defects therein,
2 comprising:
3 (a) a lithography mask blank including a reflective substrate and an interference
4 stack formed on the reflective substrate to enhance the reflectivity thereof; and
5 (b) a photoresist layer formed on the interference stack and having a fluorescent
6 material incorporated therein.

1 23. (original) The lithography mask blank of Claim 22 wherein the fluorescent material
2 is selected from the group of fluorescent materials consisting of Azure B, Cresyl Violet
3 perchlorate, Rhodamine B, and Rhodamine 6 G.